OVERVIEW

*A **"wetland"** is an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. – Oregon Administrative Rule 660-023-0100*

Wetlands, including swamps, bogs, fens, marshes, and estuaries, play a crucial role in the healthy of an ecosystem by providing essential habitat for waterfowl, fish, amphibians and many other animal and plant species. These areas also serve several natural hydrologic functions, including absorbing flood waters, sustaining summer stream flows, replenishing ground water, and filtering out harmful pollutants from waterways. Wetlands also offer prime sites for people to witness the wonders of a unique natural setting where fish, wildlife, plants and water converge. These beneficial functions of wetlands, however, may be adversely affected by human activities such as encroachment through development, alterations to natural drainage patterns, pollution, and the introduction of nuisance plant species.

Notable rules, statutes or plans that apply to **wetlands** within the City include:

1. Oregon Statewide Planning Goal 5: Natural Resources, Scenic & Historic Areas, & Open Space
2. Oregon Administrative Rule (OAR) 660-016: Requirements & Application Procedures for Complying with Goal 5
3. OAR 660-023: Procedures and Requirements for Complying with Goal 5
4. OAR 141-085: Issuance & Enforcement of Removal-Fill Authorizations
5. OAR 141-086: Wetland Conservation Plan

According to the 2000 Oregon State of the Environment Report, the Willamette Valley has lost approximately 57% of its original wetlands and a recent study indicates the valley continues to lose more than 500 acres per year. According to the study, 29% of statewide native wetland plant communities (and 44% within the Willamette Valley) are designated as "imperiled." These statistics reinforce the importance of addressing the threats to existing wetland areas.

The Federal Government regulates the discharge of dredged or fill materials into waters of the United States, including wetlands, through a program established by Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers administers the Wetland Regulatory Program including the permit review for proposed activities impacting wetlands.

In addition, the Oregon State Remove and Fill Law requires those who plan to fill, remove or alter materials in waters of the state, including wetlands, to obtain a permit from the Oregon Department of State Lands (DSL). Under Oregon Administrative Rule (OAR) 660-023, local governments may develop a program to protect locally significant wetlands using either the standard Goal 5 Economic, Social, Environmental and Energy (ESEE) process or a "safe harbor" ordinance as defined in OAR 660-023-0100. Locally Significant Wetlands, as defined under OAR 141-086-0330, are "those wetland sites that provide functions or exhibit characteristics that are pertinent to community planning decisions made at a local scale."

In 1997, the City of Tigard adopted an overlay district under the Goal 5 "safe harbor" provisions to protect locally significant wetlands. The safe harbor provision restricts grading excavation, placement of fill, and

vegetation removal within significant wetlands. Additional wetland regulations contained in the Tigard Community Development Code apply to significant wetlands, as well as, existing or created wetlands covered by Clean Water Services "vegetated corridor" buffer as defined in their *Design and Construction Standards*. The Sensitive Lands chapter also specifies that "precise boundaries may vary from those shown on wetland maps"; thus necessitating site specific delineation of wetland boundaries for proposed development.

Local Resources

In 1994, the City of Tigard contracted with Fishman Environmental Services (now known as SWCA Environmental Consultants) to update the City's existing wetlands inventory (originally conducted by Scientific Resources, Inc in 1989) to meet statewide Goal 5 requirements and Department of State Lands' (DSL) Local Wetland Inventory (LWI) requirements. Local wetlands were identified and delineated using three sets of criteria (as outlined by the *1989 Federal Interagency Committee for Wetland Delineation* manual), including vegetation criteria, hydric soils criteria and hydrology criteria.

The 1994 Local Wetlands Inventory was performed by Fishman Environmental Services in close coordination with DSL staff. The Local Wetland Inventory was carried out using a "watershed" approach based on a stream corridor assessment, which emphasized the interrelationship with related aquatic resources within the same ecological system. Stream reaches and zoning patterns were used to delineate 11 aquatic resource units. The study area included all areas within the City's border (including unincorporated islands) and some properties directly adjacent to the city limits.

The majority of wetlands inventoried in Tigard are closely associated with Fanno Creek and its tributaries, in particular along Ash Creek and Summer Creek. A few isolated wetlands and two small streams flowing directly into Tualatin River were also inventoried. Field investigations were conducted by Galen & Walker during August through October 1994. Each site was field checked, except when access was denied, in order to update the off-site wetland inventory to LWI standards.

The Oregon Freshwater Wetland Assessment Method was used to assess six wetland functions: wildlife habitat, fish habitat, water quality, hydrological control, education and recreation. It also assess the conditions of sensitivity to impacts, enhancement potential and aesthetics. The results of the function and value assessment for each of the 11 aquatic resource units are summarized in the Appendix 2.

As outlined under Oregon Administrative Rule (OAR) 141-086 for Wetland Conservation Planning, "locally significant wetlands" were designated according to the criteria and procedures for identification of significant wetlands adopted by the Oregon Department of State Lands (DSL). Inventoried wetlands were deemed "significant" if they received the highest rating on at least two of the four primary wetland functions, namely wildlife habitat, fish habitat, water quality and hydrological control. Of the 120 wetlands present within Tigard's city limits, roughly 99% are classified as "significant" wetlands. Refer to Table 2 for a summary of significant and insignificant wetlands.

Table 2. City of Tigard Wetlands

Wetland Type	Quantity	Acres	Percent
Significant Wetland	109	284.17	99%
Insignificant Wetland	11	3.01	1%
Total	120	287.18	100%

In 1997, the City of Tigard Local Wetlands Inventory (LWI) and Wetlands Assessment was approved by the State DSL. Approval by DSL means that the wetlands inventory meets state LWI standards, and therefore, becomes part of the State Wetlands Inventory and must be used in lieu of the National Wetlands Inventory.

The City's safe harbor regulations for significant wetlands provide affected property owners with the option to apply for a comprehensive plan amendment under a "hardship" variance, which would be approved based on a site-specific Economic, Social, Environmental and Energy (ESEE) analysis or a determination of wetland "insignificance". Since completion of the LWI, some refinements have been made to the inventory based on site-specific delineations and loss of wetlands due to land form alteration or development. A map of inventoried wetlands within the City of Tigard is shown in Figure 2.

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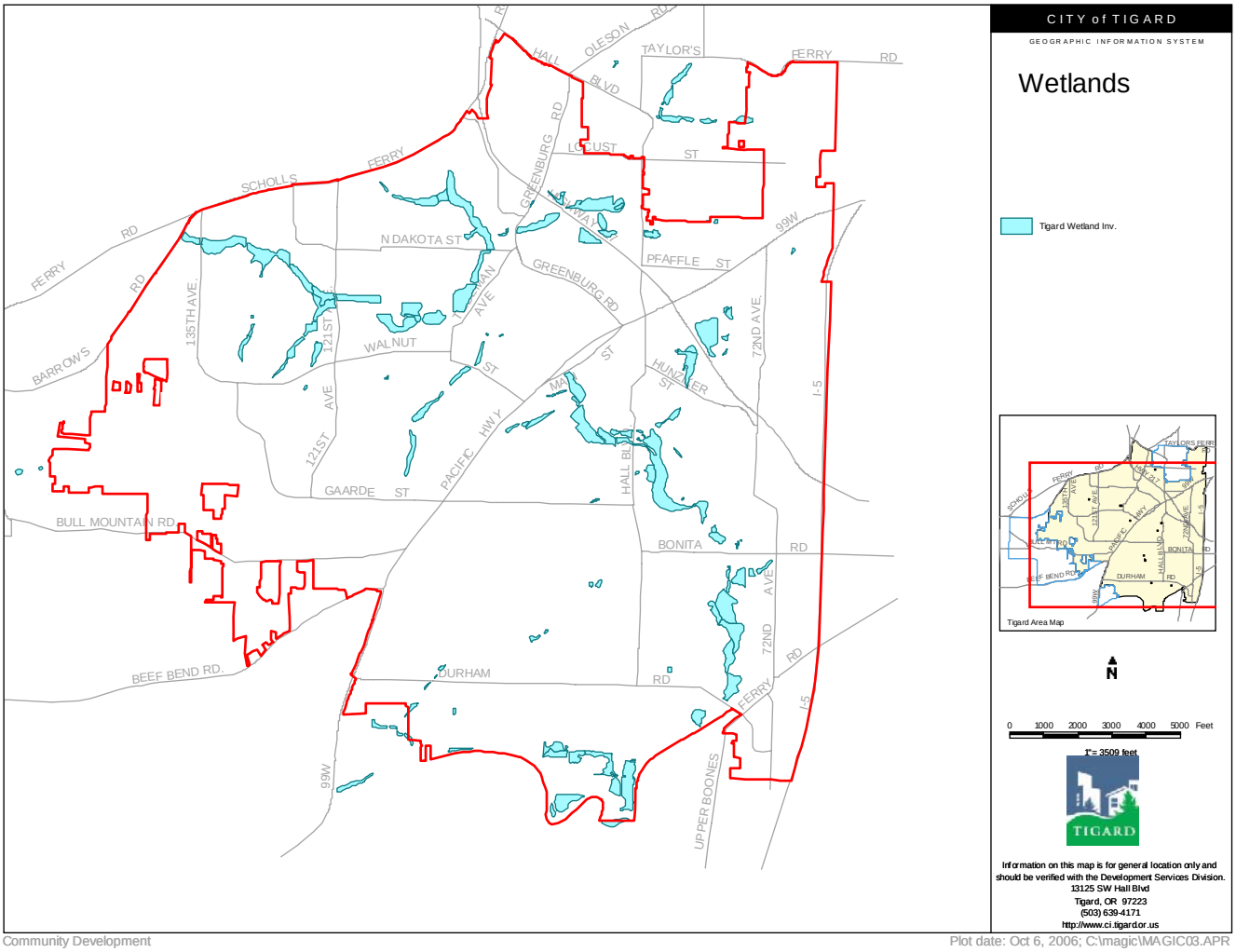
FIGURE 2: WETLANDS MAP



Key Findings

- According to the City of Tigard Local Wetlands Inventory (LWI), there are 120 wetlands covering approximately 287 acres within the City's borders.
- Roughly 99% of the City's wetlands are classified as "locally significant wetlands," per procedures outlined under Oregon Administrative Rule (OAR) 141-086.
- The City of Tigard coordinates the development review of proposed activities impacting wetlands with the U.S. Army Corps of Engineers, Oregon Department of State Lands and Clean Water Services.
- The City of Tigard has adopted "safe harbor" provisions provided under Statewide Planning Goal 5 to protect locally significant wetlands from grading, excavation, placement of fill, and vegetation removal.
- The Tigard Community Development Code requires Sensitive Lands Review for any development which would impact "significant" wetlands or the "vegetated corridor" buffer to wetlands, as defined in Clean Water Services Design and Construction Standards.
- Wetlands in their natural state perform vital ecological functions including the storage, absorption, detention, and natural filtration of water, the provision of diverse habitats for fish and wildlife, the recharge of groundwater, and the growth of unique vegetation communities.
- Wetlands may be adversely affected by human activities such as encroachment through development, alterations to natural drainage patterns, pollution, and the introduction of nuisance plant species.

OVERVIEW

> *"**Wildlife habitat**" is an area upon which wildlife depend in order to meet their requirement for food, water, shelter, and reproduction. Examples include wildlife migration corridors, big game winter range, and nesting and roosting sites. – Oregon Administrative Rule 660-023-0100*

Despite growing urbanization, Tigard and the surrounding area remain home to an impressive diversity of birds, mammals, fish, amphibians and reptiles. This is evidenced by the 2006 opening of the nation's tenth urban wildlife refuge just a few miles up the Tualatin River from Tigard's city limits. The Tualatin River Wildlife Refuge hosts several notable native plant and animal species, including bald eagles, painted turtles and beaver. Fish and wildlife species depend on a complex array of habitat conditions for their food, water, mobility, security and reproductive needs.

Wildlife habitat within the City of Tigard is heavily concentrated adjacent to waterbodies, such as streams and wetlands. However, there are patches of upland habitat in drier, higher elevations across the City. Vegetation contributes to the aesthetic quality of the community and serves as an essential element in controlling runoff and soil erosion, moderating temperatures, reducing air pollution and providing protective cover for wildlife.

Notable rules, statutes or plans that apply to **fish and wildlife habitat** within the City include:

1. Oregon Statewide Planning Goal 5: Natural Resources, Scenic & Historic Areas, & Open Space
2. Oregon Administrative Rule 660-016: Requirements and Application Procedures for Complying with Goal 5
3. Oregon Administrative Rule 660-023: Procedures and Requirements for Complying with Goal 5
4. Metro Urban Growth Management Functional Plan, Title 13: Nature in Neighborhoods

In 1973, the Federal Government passed the Endangered Species Act to protect and recover imperiled (endangered and threatened) species and the ecosystems which they depend upon. The U. S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are responsible for listing species in danger of extinction and identifying their critical habitat.

Under Statewide Planning Goal 5, local governments are required to obtain current habitat inventory information for wildlife habitat inventories (at a minimum including threatened, endangered, and sensitive wildlife species habitat information; sensitive bird site inventories; and wildlife species of concern and/or habitats of concern) from the Oregon Department of Fish and Wildlife (ODFW), and other state and federal agencies. Refer to Appendix 3 for a list of Oregon Natural Heritage Program listed species found within the Lower Tualatin Watershed, which includes in the southeastern portion (covering Tigard) of the Tualatin River Basin from river mile 28.2 to the Willamette River.[4]

Goal 5 rules outline a standard process for inventorying significant habitat areas which follows three basic steps, including inventorying habitat areas; performing an economic, social, environmental and energy (ESEE) analysis, and developing and implementing a protection program. Since fish and wildlife habitat is considered a "regional resource", each phase of the standard Goal 5 process was coordinated between Metro and local jurisdiction in collaboration with other agencies (such as Clean Water Services).

[4] *Lower Tualatin Watershed Analysis*, Washington County Soil and Water Conservation District, J.T. Hawksworth, August 2001.

Local Resources

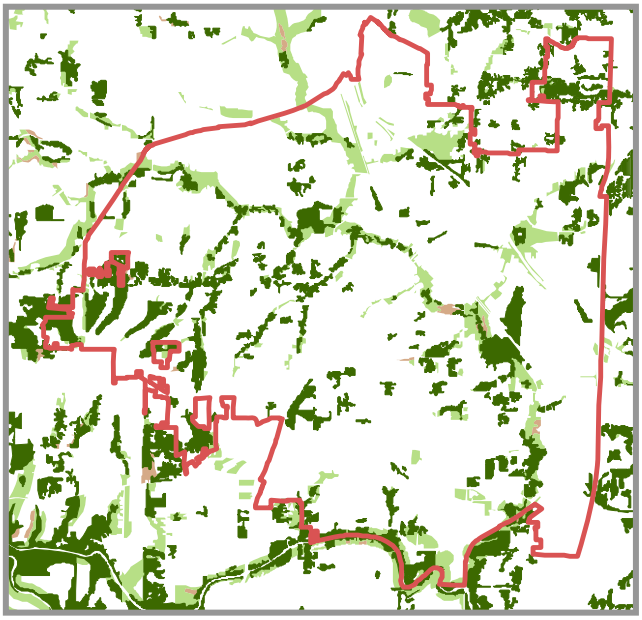
Significant Habitat Inventory

In 2002, the Metro Council adopted a regional inventory of significant fish and wildlife habitat. Two sets of criteria were selected to identify the location and health of fish and wildlife habitat: one for riparian habitat and one for drier upland wildlife habitat. Riparian habitat was assessed based on the following criteria: microclimate and shade; bank stabilization, sediment and pollution control, stream flow and water storage; woody debris and channel dynamics; and organic matter input. Based on the criteria established, more than 1,100 acres of regionally significant riparian habitat was inventoried within Tigard's city limits.

Wildlife habitat was defined by habitat patch size, habitat area in the center of a patch, distance between habitat patches, and access to water and habitats of concern. Based on the criteria established, nearly 300 acres of regionally significant "upland" habitat was inventoried within the City of Tigard.

In determining regional habitats of concern, Metro gathered data on sensitive species sighting locations, sensitive bird sites, and wildlife species of concern; linked sensitive wildlife species to their habitat needs; and estimated the amount of potential habitat available. Sources of this data included ODFW, Oregon Natural Heritage Program, Metro Parks and Greenspaces, Audubon Society of Portland, local wildlife experts, and other Metro fieldwork.

Tigard Vegetative Cover



As part of a regional inventory of significant habitat areas, Metro produced a "vegetative cover" map based on 2002 digital image data and a generalized criteria for canopy type (forest, woody vegetation or low structure/open field) defined by the Metro Data Resource Center. The criteria for each vegetative cover type was based on type of vegetation observed in the aerial photos and size of the overall contiguous area of each patch of vegetation. The resulting Metro Vegetative Cover Map shows that forest canopy covers roughly 11% of the City, low structure/open field covers roughly 7%, and woody vegetation covers only 0.2%. Refer to Table 3 for the total acres for each vegetation type. The vegetation cover status of each habitat area was used to classify both significant riparian and significant upland habitat within the region.

503.67

Table 3: 2002 Vegetative Cover (mapped by Metro)

Cover Type	Acres	Percent of City Covered
Forest	836	11.2%
Woody vegetation	15	0.2%
Low structure/open field	504	6.7%

City of Tigard Total Area: 7,496 acres

Metro ranked the riparian and wildlife habitat areas based on their relative health and importance for providing benefits to fish and wildlife. The regional habitat inventory divided significant riparian areas into three types; Class I is the highest value, Class II is moderate value, and Class III is the lowest value. Significant upland wildlife is also divided into three types; Class A is the highest value, Class B is moderate value, and Class C is the lowest value. Table 4 summarizes the acreage for each significant riparian and upland type identified within the City.

Table 4: Inventoried Habitat by Class within Tigard limits

Metro Habitat Classification	Acres
Riparian Class I	704
Riparian Class II	259
Riparian Class III	144
Upland Class A	22
Upland Class B	172
Upland Class C	94

Much of the habitat designated by Metro as Class I riparian areas is protected by regulations restricting development within and adjacent to Clean Water Services' (CWS) "vegetated corridor" as established in their Design & Construction Standards. Other regulations exist within the Tigard Community Development Code, which restrict development within "sensitive lands", including streams and streamside (or riparian) resources such as drainageways, wetlands and the 100-year floodplain.

The Tualatin Basin Partners for Natural Places, an alliance of local governments (including Tigard) throughout Washington County, used the regional habitat inventory as the basis for conducting a general analysis of the Economic, Social, Environmental and Energy (ESEE) consequences of allowing, limiting or prohibiting uses that would negatively impact inventoried resources. The site-specific component of the ESEE analysis provided a more localized analysis and an opportunity to refine the Basin-wide "limit" decision where necessary.

Based on the ESEE analysis, a basin-wide Allow-Limit-Prohibit (ALP) decision was made, and the range of "limit" classifications was broken down into "lightly" limit, "moderately" limit, and "strictly" limit habitat areas. The delineation of Tualatin Basin "limit" classifications for inventoried habitat areas are mapped on Figure 3.

As shown in Table 5, the City of Tigard has 588 acres of habitat designated as "strictly" limit (i.e. Metro inventoried Class I and II riparian resources within the Clean Water Services Vegetated Corridor). An estimated 370 acres of Class I and II riparian habitat situated outside the Clean Water Services Vegetated Corridor are designated as "moderately" limit. In addition, 422 acres of non-Class I and II riparian resources within the City are designated as "lightly" limit, including both upland and lower-value riparian habitat areas.

Table 5: Inventoried Habitat by Class within the City Limits

Habitat "Limit" Class	Acres within Tigard border	Percent of City Covered
Strictly Limit	588	7.84%
Moderately Limit	370	4.94%
Lightly Limit	422	5.63%

City of Tigard Total Area: 7,496 acres

The Tualatin Basin Fish & Wildlife Habitat Program was developed by the member of the county-wide alliance to implement the findings of the ESEE analysis. In September 2005, Metro incorporated the Tualatin Basin Program as part of the regional Nature in Neighborhoods Program (Title 13) and instructed local jurisdictions to implement applicable program elements. A primary component of the program is the local adoption of provisions to facilitate and encourage the use of habitat-friendly development practices, which include a range of development techniques that reduce detrimental impacts on fish and wildlife habitat.

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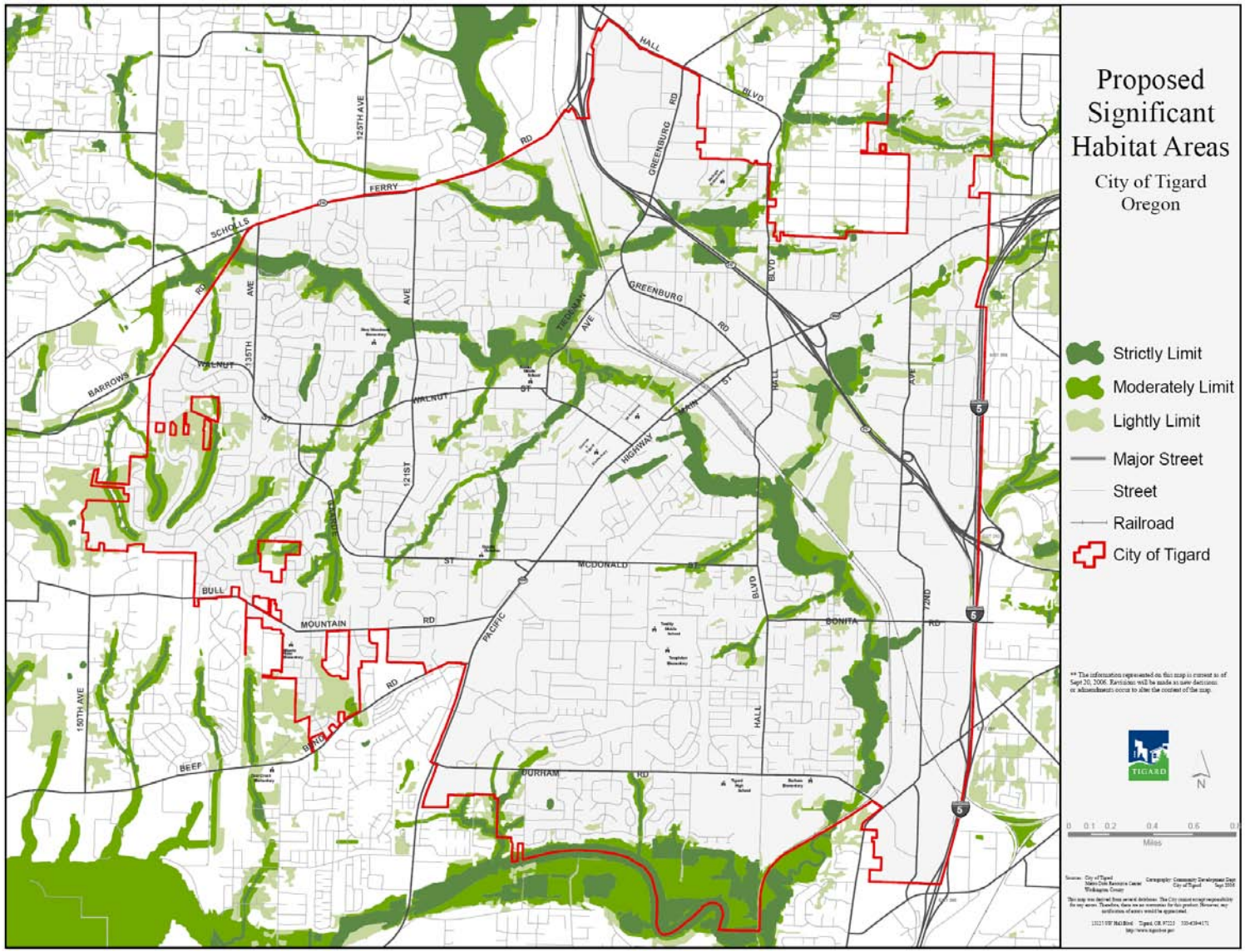
FIGURE 3: WILDLIFE MAP



Key Findings

- There are more than 1,100 acres of regionally significant riparian habitat inventoried within Tigard's city limits: 704 acres of the highest value (Class I), 259 acres of the moderate value (Class II) and 144 acres of the lowest value (Class III).
- Wildlife habitat within the City of Tigard is heavily concentrated adjacent to waterbodies.
- A large portion of the Class I and II Riparian Resources are currently protected under City of Tigard's Development Code and Clean Water Services' Design and Construction Standards.
- Nearly 300 acres of regionally significant "upland" habitat have been inventoried within the City of Tigard: 22 acres of the highest value (Class A), 172 acres of the moderate value (Class B) and 94 acres of the lowest value (Class C).
- Metro Vegetative Cover Map shows forest canopy covering roughly 11% of the City, low structure/open field covers roughly 7%, and woody vegetation covers only 0.2%
- Based on the Economic, Social, Environmental and Energy (ESEE)analysis conducted by the Tualatin Basin Partners for Natural Places, 588 acres of the inventoried regionally significant habitat was designated as "strictly limit", 370 acres was designated as "moderately limit" and 422 acres was designated as "lightly limit".
- Fish and wildlife species depend on a complex array of habitat conditions for their food, water, mobility, security and reproductive needs.
- Vegetation contributes to the aesthetic quality of the community and serves as an essential element in controlling runoff and soil erosion, moderating temperatures, reducing air pollution and providing protective cover for wildlife.
- Since 2002, the City of Tigard has collaborated with other jurisdictions within Washington County, Clean Water Services, and Metro to complete an inventory of significant fish and wildlife habitat and develop a program to conserve, protect and restore inventoried resources.